

CHARELLA GARDENS WATERWORKS DISTRICTCOMMENTS ON WELL-TEST RESULTS SUBMITTED BY SWAN, WOOSTER ENGINEERING CO. LTD., UNDER COVER OF THEIR LETTER DATED THE 4th NOVEMBER, 1967

Acting as consulting engineers to the Charella Gardens Waterworks District, Swan, Wooster Engineering Co. Ltd. submitted well-test data in support of a request for government guaranteed financing to install new works within the District.

The following comments on the well-test data are offered by Mr. J. Foweraker, P. Eng., Senior Geological Engineer of the Groundwater Division, Water Resources Service:

GENERAL

It is emphasized that the well-test data was not obtained under the supervision of Water Resources personnel and the accuracy of the results cannot be guaranteed. No allowance has been made for line losses in the air line system used for taking water level recordings in the well.

CO-EFFICIENT OF TRANSMISSIBILITY

The Co-efficient of Transmissibility of the aquifer, (calculated by the Modified Non-Equilibrium Method of Jacob, and the Theis Recovery Formula), is very low (less than 1000 gals/day/ft width). This suggests that the aquifer is more impervious than the bailer samples indicate and possibly further well development would be advisable.

The low permeability of the aquifer makes the careful study of the chemical quality of the well water essential. Incrustation problems could seriously reduce the already low permeability.

It is noted that well recovery is very slow and that residual drawdown was still eleven feet 24 hours after test-pumping had stopped. The well screen should be checked for any sand which may have come through.

SCREEN

The screen consists of 10 feet of "Johnson" 6" diameter 20 slot screen, giving a total intake area of 390 square inches. This area offers a theoretical capacity of 100 Imp. gpm at an acceptable velocity of 0.1 ft. per second through the screen openings. The screen intake area is, therefore, more than adequate for the 22 Imp. gpm requirement from the well.

WELL CAPACITY

A theoretical drawdown of 58 feet was calculated for a "model" well pumped at 22.3 Imp. gpm, (the average discharge during the pump test), with no recharge over a period of 100 days. <sup>increase in</sup> It is, however, emphasized that the "model" well used in these calculations was based on several unavoidable assumptions.

*12 continuous pumping*

RECOMMENDATIONS

1. The well screen should be checked for any sand which may have come through.
2. The advisability of further well development should be considered.
3. The chemical quality of the well water should be studied in terms of possible incrustation of the aquifer.
4. The proposed pump should be located at least 60 feet below the static level of the well, measured during the dry season.
5. The maximum well-pumping rate should not exceed 22 Imp. gpm.

Water Resources Service

Victoria B.C.

7th November 1967.

*Further recommendation made in my letter  
of Nov. 23rd 1967 0239014 / 0253728  
concerning additional test for long term recharge  
characteristics of the aquifer*